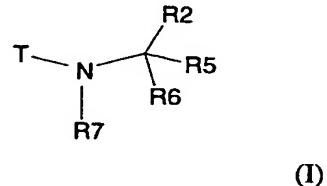


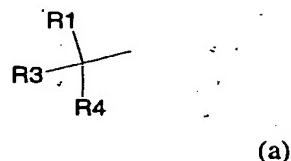
## Claims:

1. A process for the epoxidation of an alkene, which process comprises  
 5 reacting an alkene with an oxidising agent in the presence of a catalyst, characterised in that the catalyst is an amine of formula (I):



10

wherein T represents hydrogen or a moiety of formula (a):



15

$\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{R}^4$ ,  $\text{R}^5$  and  $\text{R}^6$  each independently represents hydrogen, optionally substituted alkyl, an optionally substituted aryl group, heterocycl or an optionally substituted aralkyl group wherein substituents for the above mentioned groups are selected from up to three of alkyl, aryl, heterocycyl, hydroxy, alkoxy or a group  $\text{NR}^s\text{R}^t$  wherein  $\text{R}^s$  and  $\text{R}^t$

20 each independently represent hydrogen, alkyl or alkylcarbonyl and  $\text{R}^7$  represents hydrogen, alkyl, aryl or aralkyl;

or T represents a moiety (a) wherein  $\text{R}^1$  together with  $\text{R}^2$  represents an optionally substituted alkylene chain comprising 2 to 6 carbon atoms the alkylene chain being optionally interrupted with an oxygen atom or a group  $\text{NRP}$  wherein  $\text{R}^p$  is hydrogen or

25 alkyl, and wherein optional substituents for any carbon atom of the alkylene chain are selected from hydroxy, alkoxy, oxo or a group  $\text{NR}^s\text{R}^t$  wherein  $\text{R}^s$  and  $\text{R}^t$  each independently represent hydrogen, alkyl or alkylcarbonyl or substituents on any two adjacent carbon atoms of the chain together with the carbon atoms to which they are attached form an alicyclic, aryl or heterocyclic ring; and

30  $\text{R}^3$ ,  $\text{R}^4$ ,  $\text{R}^5$ ,  $\text{R}^6$  and  $\text{R}^7$  are as defined above. A suitable oxidising agent is a nucleophilic oxidising agent.

2. A process according to claim 1, wherein in the compound of formula (I)  $\text{R}^1$  together with  $\text{R}^2$  represents an optionally substituted alkylene chain comprising 2 or 3 carbon atoms.

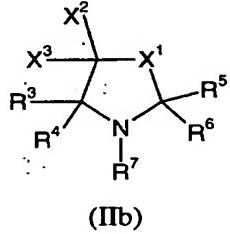
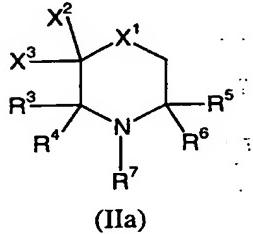
3. A process according to claim 1 or claim 2, wherein in the compound of formula (I) T represents a moiety of the above defined formula (a),  $\text{R}^1$  together with  $\text{R}^2$  represents an optionally substituted alkylene chain as defined above,  $\text{R}^5$  represents

optionally substituted alkyl, an optionally substituted aryl group, heterocycl or an optionally substituted aralkyl group wherein substituents for the above mentioned groups are selected from up to three of alkyl, aryl, heterocycl, hydroxy or alkoxy and R<sup>7</sup> represents hydrogen, alkyl, aryl or aralkyl and R<sup>3</sup>, R<sup>4</sup> and R<sup>6</sup> each independently represents hydrogen.

5

4. A process according to any one of claims 1 to 3, wherein in the compound of formula (I) R<sup>5</sup> group is a diphenylmethyl group.

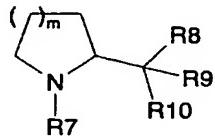
10 5. A process according to claim 1, wherein the compound of formula (I) is an amine of formula (IIa) or (IIb):



15 15. wherein R<sup>5</sup>, R<sup>6</sup> and R<sup>7</sup> are as defined in any preceding claim, X<sup>1</sup> is CH<sub>2</sub>, O or NX<sup>4</sup>, wherein X<sup>4</sup> represents hydrogen, alkyl, alkylcarbonyl, alkoxy carbonyl, aryl, aralkyl and either R<sup>3</sup> and R<sup>4</sup> are as defined in any preceding claim, X<sup>2</sup> independently represents any value of R<sup>2</sup> and X<sup>3</sup> independently represents any value of R<sup>3</sup> or X<sup>2</sup> and R<sup>3</sup> each independently represent hydrogen and X<sup>3</sup> and R<sup>4</sup> together with the carbon atoms to which they are attached form an alicyclic or heterocyclic ring.

20

6. A process according to claim 1, wherein the compound of formula (I) is an amine of formula (IIc):



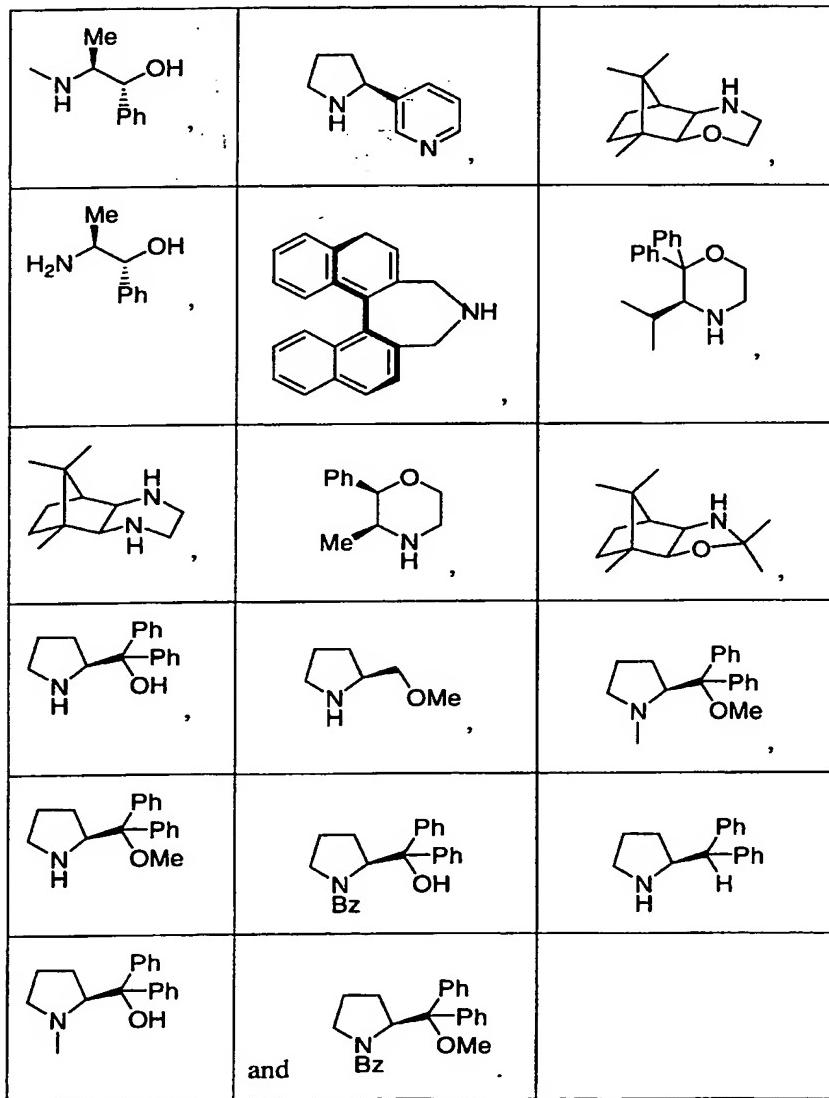
(IIc)

25

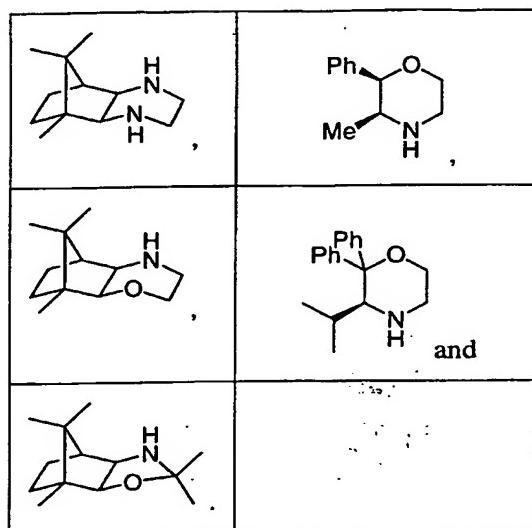
30 30. wherein R<sup>7</sup> is as defined in formula (I) and R<sup>8</sup> and R<sup>9</sup> each independently represents an alkyl or, preferably, an aryl group and R<sup>10</sup> represents hydrogen, hydroxy or alkoxy and m is an integer 1 or 2.

7. A process according to any one of claims 1 to 6, wherein in the compound of formula (I) R<sup>7</sup> represents hydrogen.

8. A process according to any one of claims 1 to 7, wherein in the compound of formula (I) R<sup>8</sup> and R<sup>9</sup> each independently represents phenyl.
9. A process according to any one of claims 1 to 8, wherein in the compound of formula (I) R<sup>10</sup> represents hydrogen.
10. A process according to any one of claims 1 to 9, wherein in the compound of formula (I) m is an integer 1.
- 10 11. A process according to claim 1, wherein in the compound of formula (I) is selected from the list consisting of:

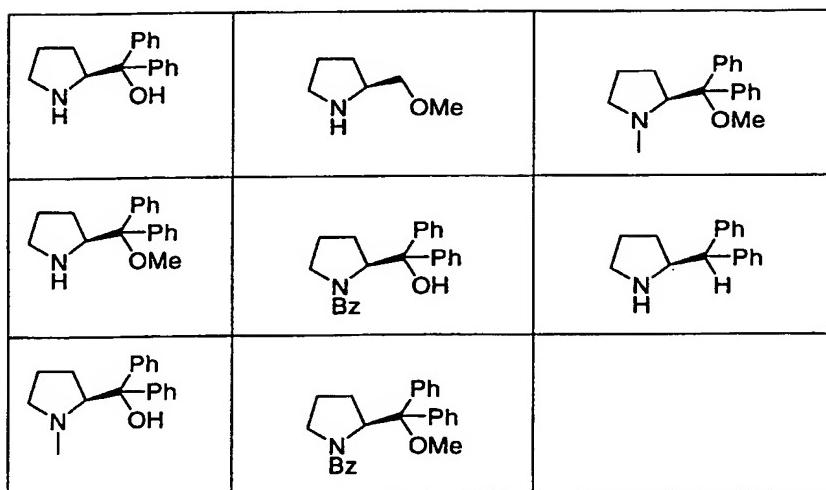


12. A process according to claim 5, wherein in the compound of formulae (IIa) and (IIb) is selected from the list consisting of:



5

13. A process according to claim 6, wherein in the compound of formulae (IIc) is selected from the list consisting of:



10

14. A process according to claim 1, wherein in the compound of formula (I) is (S)-(-)-2-(diphenylhydroxymethyl)pyrrolidine or (S)-(-)-2-(diphenylmethyl)pyrrolidine.

15. A process according to claim 1, wherein the oxidising agent is a nucleophilic oxidising agent.

16. A process according to claim 1, wherein the reaction is carried out in the presence of a base.
- 5 17. A process according to claim 1, wherein the oxidising agent is a mixture of Oxone® (KHSO<sub>5</sub>) and sodium bicarbonate.
18. A process according to claim 1, wherein the oxidation is carried out in the presence of a second base.
- 10 19. A process according to claim 18, wherein the second base is pyridine, 2, 6-lutidine or triethylamine.
20. A process according to claim 1, wherein the molar ratio of the compound of formula (I) to the prochiral alkene is in the range of from 1 to 10 mol %.
- 15 21. A process according to claim 1, wherein the molar ratio of the compound of formula (I) to the prochiral alkene is 5 mol %.